

Shilo Inn - Idaho Falls

Someone will meet you at
the airport - ~~the bus~~ or you can
call their Shuttle Bus to come get
you

August 27, 1993

Shilo Inn

208/523-0088

Dr. Brewster Kahle
WATS, Inc.
Menlo Park, CA
Fax (415) 321-6513

ATTENTION: Ms. Dix Cheney

General
Meeting at 8:30 AM
until noon

meeting happens in the
Idaho Falls Room at
the Shilo Inn

SEVENTH ANNUAL INEL COMPUTING SYMPOSIUM - T1W-122/93

Dear Dr. Kahle:

you are speaking
from 10:30 am - 11:30

This is to confirm our invitation to you to present an address on October 5 at the Seventh Annual Idaho National Engineering Laboratory (INEL) Computing Symposium. The INEL is a Department of Energy (DOE) engineering and research laboratory that employs over 11,000 professionals.

The symposium is scheduled for October 5 through 8, 1993 in Idaho Falls, Idaho. We have scheduled you to speak at 10 a.m. on October 5, 1993, for one hour. We would be honored to hear your views on the status and future of information based servers over wide area networks.

This year's theme is "Innovations and Applications". Emphasis will be on technology transfer to private industry and educational institutions. The agenda includes general sessions, technical sessions on a variety of computer related topics, workshops for educators, a gallery of submitted computer graphics, an exhibit of various computer technologies developed at our laboratory, and a vendor show. (See enclosed agenda and vendor information)

The intent of this event is to inform scientists, engineers, and administrative staff on how new technological developments relate to their specific areas of expertise. Most of the attendees will be from the INEL, other DOE laboratories (Los Alamos, Lawrence Livermore, Argonne National Laboratory, etc.), other government agencies, universities, and private enterprise. We expect the attendance at this year's symposium to exceed 2,500 professionals.

In addition, we expect another 1,000 elementary through senior high teachers and school administrators to attend the symposium on October 7 and 8. Teachers will be given the opportunity to receive college and/or state inservice credit for attending the symposium.

Another event scheduled as part of the symposium is a Technology Transfer Exhibition. The exhibition will feature INEL computing technologies with a

Dr. Brewster Kahle
 WAIS, Inc.
 TLW-122-93
 Page 2

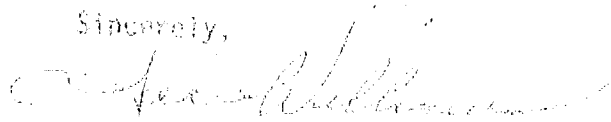
high potential for industrial or academic transfer. This particular event will be promoted among private industry. The general public can attend all symposium events free of charge.

Idaho Falls is approximately three hours from the west entrance of Yellowstone National Park and two hours from Grand Teton National Park. We are also within easy driving distance to Sun Valley, Idaho; Jackson Hole, Wyoming; and the Idaho primitive area. If you are interested in this area, we would be happy to make arrangements for a fishing trip, float trip, etc. The weather in early October is usually very mild.

We will need an abstract and a biography (each 300 words or less), and your audio/visual needs noted on the enclosed form. This information can be faxed to me at (208) 526-9936 at your earliest convenience.

I sincerely appreciate your consideration of our request and look forward to meeting you in October. If you require further information, please feel free to contact me at (208) 526-9728 or via email tlw@inel.gov.

Sincerely,



Teri Williams, Chair
 INEL Computing Symposium

Enclosure:
 As stated

**Seventh Annual INEL Computing Symposium
"Innovations & Applications"
October 5 - 8, 1991
Idaho Falls, Idaho**

Agenda

General Sessions

Shilo and Westbank Convention Centers

Tuesday October 5	Wednesday October 6	Thursday October 7	Friday October 8
<p>Welcome Address:</p> <p>Mr. John M. Wilczynski, DOE-Idaho Operations Office</p> <p>8:30 to 9:00 a.m.</p>	<p>Keynote Address:</p> <p>"Ideas & Information for Tomorrow's World"</p> <p>Dr. Arno Penzias, Vice President of Research at AT&T Bell Laboratories; Nobel Laureate; Author, "Ideas and Information"</p> <p>8:30 to 9:30 a.m.</p>	<p>"Innovations for the Classroom"</p> <p>Dr. Kathleen Holmes, Director of the Center For Educational Technology, University of Texas</p> <p>8:30 to 9:30 a.m.</p>	<p>No General Session</p>
<p>Keynote Address:</p> <p>"Innovations in Computing & Practical Applications of Future Technology"</p> <p>Dr. Nicholas Negroponte, Founder and director of the Massachusetts Institute of Technology's Media Laboratory</p> <p>9:00 to 10:00 a.m.</p>	<p>(not confirmed)</p>	<p>(not confirmed)</p>	<p>No General Session</p>
<p>"Networking the Future"</p> <p>Dr. Brewster Kahle, Founder of Wide-Area Information Server (WAIS), Inc.</p> <p>10:30 to 11:30 a.m.</p>	<p>"The Army Reserve Component Automation System (RCAS)"</p> <p>Colonel Mathew Thompson, Department of the Army Program Management</p> <p>11:00 a.m. to noon</p>	<p>"How to Interpret Computer Jargon"</p> <p>Dr. Tom Woods, President of Liveware Solutions International, Computer Training Consultant</p> <p>11:00 a.m. to noon</p>	<p>"Nature of the Changing World"</p> <p>Dr. Raymond Kurzweil, CEO of Kurzweil Applied Intelligence; Inventor; Author, "The Age of Intelligent Machines"</p> <p>1:15 to 2:15 p.m.</p>

Please
Edit
To
Read
How
You
Want

*Seventh Annual INEL Computing Symposium
October 5 through 8, 1993
Idaho Falls, Idaho*

Technical Session Descriptions

Database Systems:

This session will entail various approaches, techniques, and tools for designing and implementing complex databases that are networked and distributed.

Industrial Applications Of Numerical Methods:

This session is dedicated to the solution of real-world problems through application of computer technology and numerical methods. The session spotlights several areas: (1) Novel application of existing computer programs and methods, (2) Verification of new numerical algorithms and programming methods of direct use to American industry.

Information Systems:

This session deals primarily with the use of computers for administrative and business applications.

Security:

Speakers in the Security session will address various tools and strategies for maintaining computer and network security and protecting against viruses.

Electronic Conferencing:

Speakers will discuss electronic conferencing trends and how they will reduce business travel costs, improve communications, and enhance employee training.

High Performance Computing: Methods, Algorithms, and Models

This session focuses on development and implementation of high performance computing. New numerical algorithms, with emphasis on coarse grain parallelism, are featured. Also featured are method implementation and optimization as well as model development.

Networks:

Presentations in the Networks session will cover the various distributed computing architecture, examples of specific networked systems, and techniques for managing and controlling network usage.

End-User Computing and Services:

Presentations in this session address tools and utilities that can be implemented in any work environment to enhance personnel productivity.

Seventh Annual INEL Computing Symposium
October 5 through 8, 1993
Idaho Falls, Idaho

Technical Session Descriptions

Medical Computing:

With the growing need of our nation to reduce health care costs, opportunities for computer research and modeling in the medical field will increase. This session focuses on current and future computer research being conducted at the INEL and around the nation.

Technology in The Classroom:

This session is directed to teachers and other educators and will cover various ideas and information relating to how computer technologies can enhance K-12 classrooms.



Idaho National Engineering Laboratory • December 1992

INEL Overview

The Idaho National Engineering Laboratory Site is located on 890 square miles in the southeastern Idaho desert. Within this perimeter are nine nuclear research and development facilities.

The federal government selected the INEL Site in the late 1940s, when the Atomic Energy Commission needed a location for conducting nuclear research and development and nuclear-related defense work. The southeastern Idaho location was ideal because it was remote, large and unpopulated.

Established in 1949 as the National Reactor Testing Station, the INEL now contains the largest concentration of nuclear reactors in the world. Fifty-two reactors, most of them first-of-a-kind, have been built here, including the Navy's first prototype nuclear propulsion plant. Twelve of these reactors are still operable; the others were phased out upon the completion of their missions.

In 1951, the INEL achieved one of the most significant scientific accomplishments of the century — the first use of nuclear fission to produce usable electricity at Experimental Breeder Reactor No. 1. EBR-1 is now a Registered National Historic Landmark open to the public.

Boiling water reactor prototypes and the first pressurized water reactor were built and operated at the INEL in the 1950s. One, Borax III, was the first to light a city — Arco, Idaho — in 1955.

In 1974, the Site's name was changed to the Idaho National Engineering Laboratory to better characterize current projects, which

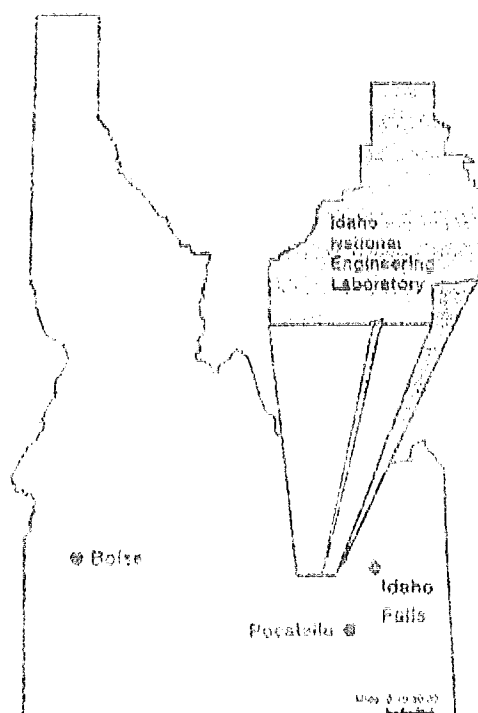
now include research engineering for non-nuclear and nuclear energy programs. The INEL employs approximately 12,000 people.

Mission

The INEL's mission is to provide the nation with innovations in nuclear technologies and unique scientific and engineering capabilities in non-nuclear programs that provide commercialization potential or enhance the quality of the environment.

Administration

Five private contractors operate the laboratory for the Department of Energy Idaho Field Office. These include EG&C Idaho, Inc., Westinghouse Idaho Nuclear Co., Babcock & Wilcox Idaho, Protection Technology Idaho and MK-Ferguson of Idaho Co. DOE-ID also administers work at West Valley, N.Y. Two contractors, Argonne National Laboratory-West and Westinghouse Electric Corp., are tenants at the INEL reporting to DOE's Chicago Field Office and the Pittsburgh Naval Reactors Office, respectively. Each operates a facility on the INEL Site.



Idaho National Engineering Laboratory

Contractors

✓ EG&G Idaho is a prime management and operations contractor at the INEL. It is the mission of EG&G Idaho to provide competitively superior products and services in energy- and defense-related areas to the DOE at the INEL. Activities are conducted with priority placed on the health and safety of employees and the public, and protection of the environment. The parent company, EG&G Inc., is a Fortune 200 company with 31,000 employees in 21 nations.

✓ Westinghouse Idaho Nuclear Co. (WINCO) is the contractor at the Idaho Chemical Processing Plant at the INEL Site. The ICPP is undergoing a significant change in its mission: In April 1992, Energy Secretary James Watkins announced that the ICPP will no longer reprocess spent nuclear fuel to recover highly enriched uranium. The ICPP work force will shift during the next several years to research and development geared toward processing spent fuel and high-level wastes for ultimate disposal in a geologic repository off-site.

✓ Babcock & Wilcox Idaho operates the Specific Manufacturing Capability project at Test Area North at the northern end of the INEL Site. SMC produces a special armor for the Army's main battle tank, the M1A1. B&W Idaho is jointly owned by elements of Babcock & Wilcox Co. and Olin Corp.

✓ Argonne National Laboratory-West is the United States' prime testing center for experimental breeder reactor research. ANL-W is the home of Experimental Breeder Reactor No. 2, which has been in operation since 1964. It is also the home of research on the Integral Fast Reactor, the new generation of nuclear power plants. Research at ANL-West and ANL-East by the University of Chicago's Argonne National Laboratory is under contract to the DOE's Chicago Field Office.

✓ Protection Technology Idaho provides protection and security services to the INEL at the Site and in-town facilities. PTI is a subsidiary of Day & Zimmerman of Philadelphia.

✓ MK-Ferguson of Idaho conducts major construction operations at the INEL. More than 2,000 construction projects were completed at the INEL between 1979 and 1990. The projects varied in difficulty from the simple installation of concrete pads to the complex demolition and rebuilding of a process cell. The parent company is Morrison Knudsen Corp.

✓ Westinghouse Electric Corp. operates the Naval

Reactors Facility on the INEL Site for the DOE and U.S. Navy under jurisdiction of DOE's Pittsburgh Naval Reactors Office. NRF tested the world's first nuclear submarine reactor plant in the early 1950s, and later operated prototypes of the reactor plant for large nuclear-powered surface ships. Besides its testing role, the NRF serves as a training station for crews which operate naval nuclear propulsion plants.

Personnel

(figures are approximate)

Department of Energy Idaho Field Office	520
EG&G Idaho	5,165
Westinghouse Idaho Nuclear Co.	1,800
Westinghouse Electric Corp.	
(includes Navy staff and students)	1,970
Argonne National Laboratory-West	875
Babcock & Wilcox Idaho	350
Protection Technology Idaho	400
MK-Ferguson of Idaho	230
Architecture, engineering and construction contractors	400

Major Projects

Nuclear research and development

The INEL is recognized for its nuclear research and development programs. Such programs have assisted this country's defense capability in numerous ways, and non-defense capabilities in others. From materials testing at the Advanced Test Reactor to studies of the Three Mile Island-II core conducted at Test Area North, the INEL's contributions to nuclear research are highly significant.

Environmental Restoration

The INEL is committed to cleaning up the environmental consequences associated with past projects. In cooperation with the Environmental Protection Agency and the state of Idaho, the INEL Environmental Restoration Program plans and implements cleanup projects Site-wide. Some of these cleanup projects require use or development of

Idaho National Engineering Laboratory

advanced technologies. For example, INEL personnel are investigating the most reasonable and desirable technology for cleaning up a former injection well at Test Area North and remediating waste buried in an area referred to as Pit 9 at the Radioactive Waste Management Complex.

Technology Transfer

DOE continues its emphasis on working with private enterprise to develop and transfer expertise and technologies. The INEL has an aggressive technology exchange program that has already transferred numerous technologies into the private sector and provided opportunities for large and small businesses, universities and inventors. Projects include the study of microbes for extracting phosphate from ore, the development of a computerized voice-paging system for use by emergency response personnel, and a program for U.S. steel and automotive industries.

Complex 21

DOE is considering reconfiguration of the complex of facilities — located in different states throughout the country — that are used to produce the nation's nuclear weapons. The consolidated complex will be more compact, less diverse and less expensive to operate than the current facilities which were built over 30 years ago. Reconfiguration is based upon the assumption that a strong nuclear deterrence will remain a principal element of the security of the United States. INEL is well-suited for construction and operation of all or part of Complex 21. The new facility, if located at the INEL, would ensure that the INEL will be involved in the utilization of the most modern technologies for processing nuclear materials, including robotics, waste minimization and waste management.

Integral Fast Reactor

The INEL is the home of Argonne National Laboratory-West's Integral Fast Reactor (IFR) test and development facilities. The IFR is a new generation of breeder reactor, being developed because it has significant advantages in the areas of waste, safety, fuel supply, transportation of nuclear materials and diversion of nuclear materials. The future of nuclear reactor use in this country may reside in the IFR technology.

INEL Research Center

At the INEL Research Center in Idaho Falls, scientists and engineers explore a range of disciplines including chemical sciences, materials processing, biotechnology, physical sciences and environmental sciences. IRC personnel are involved in electric vehicle testing, improving methods to detect nuclear warheads and identifying biodegradable products for stripping metals. IRC research serves as a cornerstone for programs geared toward securing future energy supplies, increasing energy and economic efficiency, enhancing environmental quality and improving industrial productivity and competitiveness for the United States.

INEL Supercomputing Center

The INEL Supercomputing Center offers a wide range of computer systems, computing expertise, and end-user services that provide technologically advanced computing capabilities for engineering, scientific and administrative applications. The supercomputer, a CRAY X-MP/216, is currently available for use by other government agencies and private companies and universities with work funded by the federal government.

Educational Programs

The INEL cooperates with educational partners in the intermountain region to enhance math and science education. The INEL sponsors educational programs and activities for students in grades K-12 and their teachers with summer camps, workshops, classroom activities, equipment and INEL technology and expertise. University students and faculty participate in research opportunities unique to the technologies developed at the INEL. Collaborative efforts among the INEL, educational institutions, industry, and other governmental agencies help produce a scientifically literate population.

National Environmental Research Park

Besides being a nuclear laboratory, the Site is also a National Environmental Research Park, one of only five in the nation. All lands within the INEL boundaries are a protected outdoor laboratory where scientists from DOE, other federal and state agencies, universities and private research foundations conduct ecological studies.

The Seventh Annual Idaho National Engineering Laboratory (INEL) Computing Symposium is scheduled for October 5-8, 1993, at the Shilo Inn in Idaho Falls, Idaho. The purpose of this symposium is to provide a forum for INEL personnel and guests from outside the INEL to discuss the application of computers to their specific areas of expertise.

The theme for the 1993 symposium is "Innovations & Applications." The symposium will focus on the application of computers in scientific and business environments, supporting computer technologies and techniques, and future directions and trends in the computer industry. It will be directed to individuals who use computers in their work or make decisions dealing with computer technology.

The Annual INEL Computing Symposium is sponsored by the Department of Energy Idaho Field Office and INEL Contractors.

Call For Papers

The INEL Computing Symposium committee invites papers from those wishing to present their work. Abstracts must be submitted in order to participate. Selection will be based on the timeliness of the technology and its relevancy to the Idaho National Engineering Laboratory.

The symposium is an informal exchange of information; consequently, full written papers will not be required. Only abstracts will be published in the symposium program. Talks are limited to 20 minutes with an additional 10 minutes for questions and answers. The primary audio-visual aids will be overheads or 35-mm slides. If other audio-visual equipment is needed, special arrangements must be made.

On the Cover

Computer image produced by Christine A. Cullen
INEL Visualization and Imaging Team

Method of Submission

The deadline to submit abstracts for presentation at the Seventh Annual INEL Computing Symposium is April 30, 1993. Abstracts must be 500 words or less and authors are responsible for obtaining release approval before submission to the symposium committee.

Presentation of your work at this symposium does not preclude presentation or publication elsewhere. Authors will be notified of selection by May 30, 1993. Submissions must include the following:

- Title of proposed presentation
- Abstract summary (500 words or less)
- Session desired for presentation (see enclosed session descriptions)
- Author's name(s)
- Organization name
- Address, phone number, FAX number, and email address
- A brief biography (300 words or less) of the person(s) who will be presenting.

Abstracts and biographies may be submitted via email to tlw@inel.gov, or mailed to:

Teri L. Williams
EG&G Idaho, Inc.
P.O. Box 1625
Idaho Falls, Idaho 83415-2602

If you wish to receive further information or would like to suggest a guest speaker,



The INEL is a facility operated by the U.S. Department of Energy

SEVENTH ANNUAL INEL COMPUTING SYMPOSIUM

OCTOBER 5-8, 1993

SHILO-O'CALLAHAN'S CONVENTION CENTER, WESTTANK INN,
STARDUST INN, IDAHO FALLS, IDAHO

Innovations and Applications

The goal of the Seventh Annual INEL Computing Symposium is to provide a comprehensive overview of various computational innovations and their application to industry, government, and academia. In these changing times, emphasis will be placed on technology transfer and the sharing of resources, ideas, innovations, and expertise. The agenda has been designed to accommodate all levels of computer knowledge; from the home user to the computational scientist. It is hoped that all who attend the INEL Computing Symposium will come away with an understanding of how computer related innovations can apply to and improve their specific area of expertise.

SYMPOSIUM HIGHLIGHTS

General Sessions

The General Sessions will feature renowned futurists and technology experts who will discuss the current uses and future directions of computer technology. (See details inside)

Technical Sessions

The Technical Sessions will cover the application of computer hardware and software in specific disciplines. (See details inside)

Educator Sessions

The educator session workshops will provide elementary through senior high school teachers and school administrators computer training and information on how technology can be applied to a learning environment.

Inservice Credit Workshops:

- "Computers Need People"
- "Whole Language and Technology for Emergent Literacy"
- "Project Spark"
- "Site--Students Investigating Today's Environment"

College Credit Workshops:

- "Grant Writing/Computer Workshop"
- "Introduction to Internet"
- "How to Utilize a Cray Supercomputer in the Classroom"
- "Introductory HyperCard in the Classroom"
- "Intermediate HyperCard in the Classroom"

To Register for Educator Session Workshops Contact Korby Smith
(208) 526-6462

* Vendor Exhibits

Over thirty hardware and software vendor companies will display and demonstrate their products.

* Technology Transfer Exhibition

This exhibition will feature demonstrations and displays of various INEL computing technologies with a high potential for industrial or academic transfer. Selected exhibits are based on the commercialization and licensing potential for government and industry collaboration.

Exhibits will be displayed October 5 and 6, 9 a.m. to 5 p.m., at the Westbank Inn.

* Tutorials

Various computer hardware and software vendors will offer specific training on the use of their products and some INEL entities will also provide training in the use of INEL systems. (See details inside)

* Graphics Gallery

The Graphics Gallery will feature computer-generated graphics representing scientific, engineering, design, and artistic applications. Images will be displayed throughout the Symposium facility

* Special Session: Industrial Opportunities

The Industrial Opportunities session will feature leaders from various industries which have possible use of INEL technologies. These experts will discuss the current and future requirements of computer technology in their respective industry. The goal of this session is to stimulate technology transfer between the INEL and industry by providing the opportunity to explore new business areas, learn of specific industrial computational requirements, and make new contacts. Thursday, October 7 from 8:00 a.m. to 12:00 noon

- **Chemical:** Dr. David Dixon, Computational Chemist
E.I. Du Pont de Nemours & Co. Inc.
- **Mining:** (Speaker unconfirmed)
- **Oil and Natural Gas:** Dr. Barney Groten, Vice President,
Energy International Inc.
- **Wood and Paper:** Dr. Cyrus Aidun, Researcher, Institute of
Paper Sciences and Technology
- **Agriculture:** Dr. Basil Acock, Research Leader and
Supervisory Plant Physiologist, USDA, Systems Research
Laboratory
- **Agriculture:** Dr. Tony Trent, Assistant Professor/Systems
Analyst, College of Agriculture/University of Idaho
- **Panel Discussion with presenters at 11:00 a.m.**

All symposium events are open to the public and free of charge (with exception of college credit fees).
See following pages for registration information.



TUESDAY, OCTOBER 5, KEYNOTE ADDRESS - 8:00 A.M.
*'Innovations in Computing and Practical Applications
 of Future Technology'*



DR. NICHOLAS NEGROPONTE
 Inventor and Futurist
 Massachusetts Institute of Technology

A true visionary, Nicholas Negroponte has created at MIT a high-tech playground for creative thought that will alter the way we communicate. Looking into the future, he sees completely new ways of accessing information and shows how changes in communication and computer technology will change the very fabric of society. A bright, pragmatic speaker, Negroponte brings his vision of information age to his audiences, complete with dramatic examples and fascinating specifics on current research.

Negroponte studied at MIT, where as a graduate student he specialized in the then-new field of computer-aided design. He joined the Institute's faculty in 1966, and for several years thereafter divided his teaching time between MIT and visiting professorships at Yale, Michigan, and the University of California at Berkeley.

In 1968 he also founded MIT's pioneering Architecture Machine Group, a combination lab and think tank responsible for many radically new approaches to the human-computer interface. Out of this experience came several influential texts by Negroponte, including *The Architecture Machine*, *Soft Architecture Machine*, and *Computer Aids to Design and Architecture*.

In addition, he consults to both government and industry, serves as an active member of several corporate boards of directors and is a special general partner in a venture capital fund dedicated to new technologies for information and publishing. He is also a senior columnist for *Wired* magazine.

TUESDAY, OCTOBER 5, GENERAL SESSION - 10:00 A.M. TO 12:00 NOON

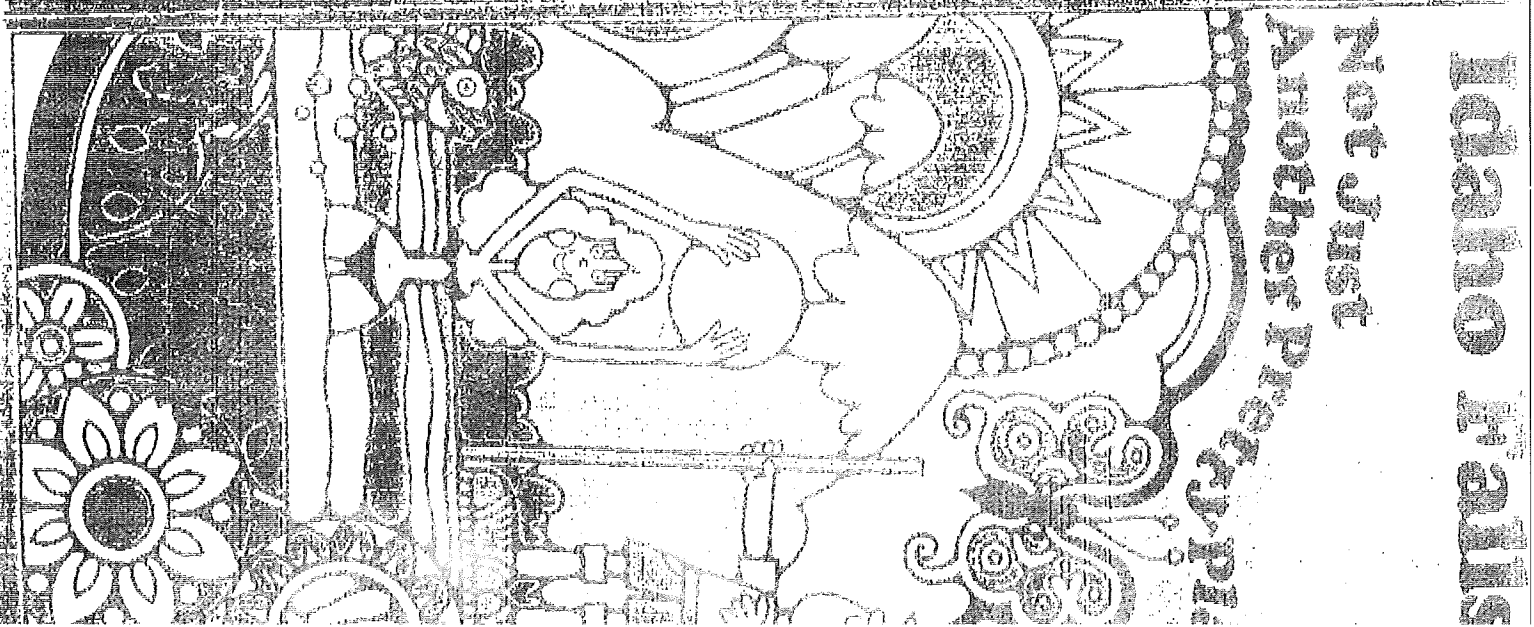
*'The Future of Wide Area
 Information Servers'*

Dr. Brewster Kahle, Founder of
 Wide-Area Information Server
 (WAIS) Inc.

*'The Army Reserve Component
 Automation System (RCAS)'*

Colonel Mathew Thompson,
 Department of the Army
 Program Management





To: tlw@inel.gov
From: Dia@wais.com (Dia Cheney)
Subject: Speech Desc & Bio/WAIS Inc

The Future of WAIS

Publishers, and the availability of published information have spurred the growth of interlinked networks. Within the past year, commercial, technical, and political forces have pushed forward the development of a vast Internet.

Central to the notion of the Digital Superhighway is the idea that publishers will control their own destiny, and not necessarily market through third-party online services. As the lessons of the Internet filter throughout our society, the question of "who is a publisher?" and "how does one publish?" becomes central to any organization.

This session will examine differences between print-based information distribution and what is possible in the new, networked world. In addition, several of the enabling technologies spawned from the Internet will be reviewed, including World Wide Web and the Wide Area Information Servers (WAIS).

In addition, basic questions such as; "how to I hook in?", "who's using it?", "what technologies are available to support it?", "what are the publishing opportunities?" will be answered.

Brewster Kahle
President
Wide Area Information Servers, Inc.

Bio:

Inventor and architect of the WAIS electronic publishing system, Brewster Kahle has lead the multi-company effort to build a practical system for end-users to find and retrieve information from servers worldwide. Before this work, he helped design and build parallel supercomputers at Thinking Machines Corporation.

Brewster was schooled at MIT in Computer Science and Artificial Intelligence.